

WHAT IS CLAIMED IS:

1. A method of manufacturing a flash memory device, comprising the steps of:

5 performing an ion implantation for controlling a threshold voltage on a semiconductor substrate;

performing a spike annealing for controlling a doping concentration and a doping profile of an implanted dopant;

forming a device isolation film for isolating an active area and a field area on the semiconductor substrate;

10 forming a gate electrode in which a tunnel oxide film, a floating gate electrode, a dielectric film, and a control gate electrode are deposited on the active area; and

performing an ion implantation for forming junctions on the semiconductor substrate in both sides of the gate electrode to form a DDD
15 junction structure.

2. The method of manufacturing a flash memory device according to claim 1, wherein the ion implantation for controlling a threshold voltage is performed by using a p-type dopant with an ion implantation energy of 5 KeV
20 to 50 KeV and a dose of $1E11 \text{ ion/cm}^2$ to $1E13 \text{ ion/cm}^2$.

3. The method of manufacturing a flash memory device according to claim 2, wherein BF_2 is used as the p-type dopant.

4. The method of manufacturing a flash memory device according to claim 1, wherein the spike annealing is performed under NH_3 , H_2 , or N_2 atmosphere at a temperature in the range of 900°C to $1,100^\circ\text{C}$ with a heating rate of $100^\circ\text{C}/\text{sec}$ to $250^\circ\text{C}/\text{sec}$.

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